



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,527	06/24/2003	Akihiro Hayami	500.38693CC2	7514
20457	7590	04/27/2004	EXAMINER	
ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-9889			PYO, KEVIN K	
			ART UNIT	PAPER NUMBER
			2878	

DATE MAILED: 04/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

10

<b>Office Action Summary</b>	<b>Application No.</b> 10/601,527	<b>Applicant(s)</b> HAYAMI ET AL.	
	<b>Examiner</b> Kevin Pyo	<b>Art Unit</b> 2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/24/03 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/603,953.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

***Drawings***

1. Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Specification***

2. The disclosure is objected to because of the following informalities:

On page 33, line 9, "191" should be changed to --119--.

On page 34, line 10, "191" should be changed to --119--.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

3. Claims 1-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claims 1 and 9, it is unclear what exactly constitutes "an APD characteristic correction unit". Is it a microprocessor? Is it shown in Fig.12? Clarification is required. Further it is unclear how and in what manner the recited APD characteristic correction unit is coupled with a light receiving element, amplifiers and a bias circuit in Fig.12.

Art Unit: 2878

Regarding claims 3, 4, 11 and 12, these claims recite the limitation “a discriminating/reproducing device”. Due to the lack of description in the specification, it is unclear what exactly constitutes the claimed discriminating/reproducing device. Is it made up with well known circuit elements? How and in what manner is a discriminating process accomplished? How and in what manner is a reproducing process accomplished? Clarification is required.

4. Claims 3-8 and 11-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 3, 4, 11 and 12, these claims recite the limitation “a discriminating/reproducing device”. It is unclear what is meant by the phrase “a discriminating/reproducing device”. Does it mean that the recited device should function both discrimination and reproduction? Clarification is required.

Claims not specifically mentioned above are rejected by virtue of their dependency on a rejected claim.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 2878

6. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Price (5,721,424).

Regarding claim 1, as far as the claim is understood, Price shows in Fig.3 the following element of applicant's invention: a) a light receiving element (28, 56) to convert optical signals into electric signals; b) an amplifier (42, 66) to amplify the electric signals converted from the optical signals; and c) a bias circuit (col.2, line 9) connected with the light receiving element, wherein the light receiving element is an avalanche photodiode (col.2, line 10) and the optical receiver includes an APD characteristic correction unit (col.2, line 19-31) to correct input and output characteristics of the avalanche photodiode.

Regarding claim 2, the limitation therein is disclosed in col.3, lines 29-31.

Regarding claims 3-6, as far as the claim is understood, Price shows in Fig.3 a clock and data regenerator (72) producing a data signal (74) and a clock signal (76). It should be noted that a discriminating/reproducing device (35) in Fig.12 producing a data signal.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

Art Unit: 2878

the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Price in view of the Japanese Patent Publication JP-57-196639 (hereinafter REF).

Regarding claim 9, as far as the claim is understood, Price differs from the claimed invention in that it does not disclose the use of the recited logarithmic converter. However, it is well known in the art, as shown by REF (see the translated portion of abstract), to utilize a logarithmic converter with an avalanche photodiode in view of detecting an optical reception level, and it would have been obvious to utilize the teaching of REF in the circuitry of Price in view of the effective performance of detecting an optical reception level for an avalanche photodiode.

Regarding claim 10, the limitation therein is disclosed in col.3, lines 29-31.

Regarding claims 11-14, as far as the claim is understood, Price shows in Fig.3 a clock and data regenerator (72) producing a data signal (74) and a clock signal (76). It should be noted that a discriminating/reproducing device (35) in Fig.12 producing a data signal.

Regarding claims 15-16, although the device of Price in view of REF does not specifically mention the use of the recited light input signal interrupt detector for providing an alarm, it is well known in the art to utilize such a detector to detect whether an avalanche photodiode has received light or not in view of improving the reliability of the APD. It would have been obvious to utilize the recited light input signal interrupt detector for providing an alarm in the device of Price in view of REF in view of improving the reliability of the APD.

Art Unit: 2878

10. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Price.

Regarding claims 7 and 8, although the device of Price does not specifically mention the use of the recited light input signal interrupt detector for providing an alarm, it is well known in the art to utilize such a detector to detect whether an avalanche photodiode has received light or not in view of improving the reliability of the APD. It would have been obvious to utilize the recited light input signal interrupt detector for providing an alarm in the device of Price in view of improving the reliability of the APD.

### ***Conclusion***

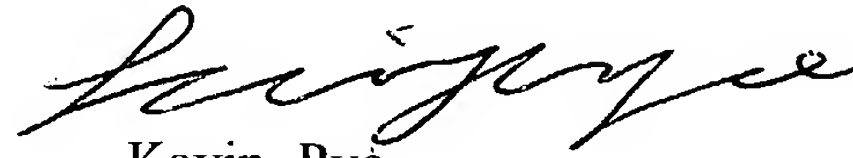
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Pyo whose telephone number is (571) 272-2445. The examiner can normally be reached on Mon-Fri (with flexible hour), First Mon. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

Art Unit: 2878

system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kevin Pyo  
Primary Examiner  
Art Unit 2878

Pkk  
3/9/04